

CLAIMS

What is claimed is:

- 1 1. A method comprising:
2 performing an encoding transformation on a set of data representing a video frame
3 as frame-based data and as field-based data to generate arrays of frame-based data and
4 arrays of field-based data;
5 selecting either the arrays of frame-based data or field-based data based, at least in
6 part, on the number of non-zero coefficients in the frame-based data and the field-based
7 data; and
8 converting an ordering of the arrays of selected data.
- 1 2. The method of claim 1 wherein the encoding transformation is a discrete
2 cosine transform (DCT) operation.
- 1 3. The method of claim 2 wherein the encoding transformation further
2 comprises quantization of results of the DCT operation.
- 1 4. The method of claim 1 wherein selecting either the arrays of frame-based
2 data or field-based data based, at least in part, on the number of non-zero coefficients in
3 the frame-based data and the field-based data comprises:
4 comparing a macroblock of frame-based data to a macroblock of field-based data;
5 and

6 selecting the macroblock of data having the fewer number of non-zero
7 coefficients.

1 5. The method of claim 1 wherein converting an ordering of the arrays of
2 frame-based data coefficients and of the arrays of field-based data coefficients comprises
3 performing a zig-zag conversion wherein an 8x8 matrix having an original order of:

4

0	1	2	3	4	5	6	7
8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23
24	25	26	27	28	29	30	31
32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47
48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63

5 are converted to having a scanning order of:

6

0	1	5	6	14	15	27	28
2	4	7	13	16	26	29	42
3	8	12	17	25	30	41	43
9	11	18	24	31	40	44	53
10	19	23	32	39	45	52	54
20	22	33	38	46	51	55	60
21	34	37	47	50	56	59	61
35	36	48	49	57	58	62	63

1 6. An article of manufacture comprising electronically-accessible medium to
2 provide instructions that, when executed, by one or more processors, cause one or more
3 electronic systems to:

4 perform an encoding transformation on a set of data representing a video frame as
5 frame-based data and as field-based data to generate arrays of frame-based data and
6 arrays of field-based data;

7 select either the arrays of frame-based data or field-based data based, at least in
8 part, on the number of non-zero coefficients in the frame-based data and the field-based
9 data; and

10 convert an ordering of the arrays of selected data.

1 7. The article of claim 6 wherein the instructions that cause the one or more
2 electronic systems to perform encoding transformation comprise instructions that, when
3 executed, cause the one or more electronic systems to perform a discrete cosine transform
4 (DCT) operation on the data representing the video frame.

1 8. The article of claim 7 wherein the instructions that cause the one or more
2 electronic systems to perform encoding transformation further comprises instructions
3 that, when executed, cause the one or more electronic systems to perform quantization of
4 results of the DCT operation.

1 9. The article of claim 6 wherein the instructions that cause the one or more
2 electronic systems to select either the arrays of frame-based data or field-based data
3 based, at least in part, on the number of non-zero coefficients in the frame-based data and
4 the field-based data comprises instructions that, when executed, cause the one or more
5 electronic systems to:

6 compare a macroblock of frame-based data to a macroblock of field-based data;
7 and
8 select the macroblock of data having the fewer number of non-zero coefficients.

1 10. The article of claim 6 wherein the instructions that cause the one or more
2 electronic systems to convert an ordering of the arrays of frame-based data coefficients
3 and of the arrays of field-based data coefficients comprises instructions that, when
4 executed, cause the one or more electronic systems to perform a zig-zag conversion
5 wherein an 8x8 matrix having an original order of:

6 0 1 2 3 4 5 6 7
 8 9 10 11 12 13 14 15
 16 17 18 19 20 21 22 23
 24 25 26 27 28 29 30 31
 32 33 34 35 36 37 38 39
 40 41 42 43 44 45 46 47
 48 49 50 51 52 53 54 55
 56 57 58 59 60 61 62 63

7 are converted to having a scanning order of:

8

0	1	5	6	14	15	27	28
2	4	7	13	16	26	29	42
3	8	12	17	25	30	41	43
9	11	18	24	31	40	44	53
10	19	23	32	39	45	52	54
20	22	33	38	46	51	55	60
21	34	37	47	50	56	59	61
35	36	48	49	57	58	62	63

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1 11. An apparatus comprising:
2 means for performing an encoding transformation on a set of data representing a
3 video frame as frame-based data and as field-based data to generate arrays of frame-
4 based data and arrays of field-based data;
5 means for selecting either the arrays of frame-based data or field-based data
6 based, at least in part, on the number of non-zero coefficients in the frame-based data and
7 the field-based data; and
8 means for converting an ordering of the arrays of selected data.

1 12. The apparatus of claim 11 wherein the means for encoding transformation
2 performs a discrete cosine transform (DCT) operation.

1 13. The apparatus of claim 12 wherein the means for encoding transformation
2 further comprises means for quantization of results of the DCT operation.

1 14. The apparatus of claim 11 wherein the means for selecting either the
2 arrays of frame-based data or field-based data based, at least in part, on the number of
3 non-zero coefficients in the frame-based data and the field-based data comprises:
4 means for comparing a macroblock of frame-based data to a macroblock of field-
5 based data; and
6 means for selecting the macroblock of data having the fewer number of non-zero
7 coefficients.

1 15. The apparatus of claim 11 wherein the means for converting an ordering
2 of the arrays of frame-based data coefficients and of the arrays of field-based data
3 coefficients comprises means for performing a zig -zag conversion wherein an 8x8 matrix
4 having an original order of:

5 0 1 2 3 4 5 6 7
 8 9 10 11 12 13 14 15
 16 17 18 19 20 21 22 23
 24 25 26 27 28 29 30 31
 32 33 34 35 36 37 38 39
 40 41 42 43 44 45 46 47
 48 49 50 51 52 53 54 55
 56 57 58 59 60 61 62 63

6 are converted to having a scanning order of:

7 0 1 5 6 14 15 27 28
 2 4 7 13 16 26 29 42
 3 8 12 17 25 30 41 43
 9 11 18 24 31 40 44 53
 10 19 23 32 39 45 52 54
 20 22 33 38 46 51 55 60
 21 34 37 47 50 56 59 61
 35 36 48 49 57 58 62 63